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THE NORTH-AMERICAN JUMPING MICE.

J. A. ALLEN.

THE jumping mice of North America form a peculiar group, restricted, with one exception, so far as now known, to the middle and northern parts of North America, ranging from North Carolina, Missouri, New Mexico, and central California, northward to Labrador, Great Slave Lake, and the Yukon River. They are a little larger than the common house mouse, with very long hind legs and a very long tail. They are yellowish brown above and white below, the color of the dorsal and ventral areas being sharply separated by a broad lateral line of bright yellowish orange. They generally prefer moist meadows, marshy thickets, and the edge of woodland, but some species frequent deep forests, near streams. They are thus necessarily local in distribution, and not generally abundant, and being apparently nocturnal in habits are not often met with. They also pass the severer parts of the winter in hibernation. Opinion seems to be divided in reference to whether they constitute a distinct family type, or merely form a well-marked subfamily of the Old World Dipodidæ, or Jerboas, with which they were formerly associated generically by early writers, and of which they may be considered the American representatives. They were first generically separated from the Old World Jerboas by Coues in 1875, under the name *Zapus*, which he considered to represent also a distinct family, *Zapodidæ*.

The members of this genus greatly resemble each other in size and color; so much so that, with the scanty and imperfect material then available for study, Baird, in 1857, and Coues, in 1877, recognized only a single species. A second was made known by Miller in 1891, and a third by Allen in 1893, while during the following six years some twenty additional species and subspecies were added. Mr. Edward A. Preble, assistant in the United States Biological Survey, has recently made a

revision of the group,¹ recognizing three subgenera, twelve species, and nine additional subspecies, of which two subgenera, three species, and five subspecies are characterized as new. One of the species, and the only non-American species known, is the *Zapus setchuanus*, from Szechuen, China, the type and sole representative of Preble's new subgenus, *Eozapus*. The molar pattern, as figured by Preble, is, however, so different in this type from that of the American forms of *Zapus* that it seems well entitled to full generic rank. The twenty American forms are separated into two subgenera, *Zapus* proper and *Napæozapus*, the latter differing from the former mainly in the absence of the minute upper premolar always found in *Zapus*. *Napæozapus* comprises the single species, *Z. insignis*, described by Miller in 1891, with its subspecies *abietorum* and *roanensis*. The *Z. insignis* group, characterized among other features by a white-tipped tail, in contrast with the species of *Zapus*, is an Eastern type, described originally from New Brunswick, and since found to range southward, in the Canadian fauna, to the mountains of North Carolina, where it forms Mr. Preble's subspecies *roanensis*, and westward to the north shore of Lake Superior, where it constitutes the same author's subspecies *abietorum*.

These subtractions leave seventeen forms — ten species and seven subspecies — in the restricted subgenus *Zapus*, which collectively cover the whole of the North American range of the genus *Zapus*, the subgenus *Zapus* being found throughout the range of *Napæozapus* as well as elsewhere.

As already said, only one species, *Zapus hudsonius*, was recognized prior to the description of *Z. insignis* Miller in 1891, but of course many other forms were confounded under this name; but even now in its restricted sense, or as defined by Preble, it has, including its four well-marked subspecies, by far the most extensive range of any member of the genus, being found from the southern shore of Hudson Bay southward to New Jersey and in the mountains to North Carolina, and westward to Iowa and Alaska.

¹ Preble, Edward A., assistant in Biological Survey. Revision of the Jumping Mice of the Genus *Zapus*, *North American Fauna*, No. 15, Aug. 8, 1899, pp. 1-41, 1 plate and 3 text-figures.

Mr. Preble, in this revision of the group, has done a good piece of work in seemingly a very acceptable manner, he having had at his command practically all of the material available in our museums and private collections, including the types of all of the recently described forms, the specimens examined by him numbering nearly one thousand.

Of the thirty specific and subspecific names applied to members of this group, seven of the nine synonyms are referred to the long known *Zapus hudsonius*. A list of the species and subspecies recognized by Mr. Preble here follows, with a brief statement of their ranges, so far as known, based on Mr. Preble's excellent paper. Much still remains to be learned about the group, especially in respect to the geographical distribution of most of the forms, but a good foundation has been laid on which to build the final superstructure.

SUBGENUS ZAPUS.

1. *Zapus hudsonius* (Zimmermann). Type locality, Hudson Bay. From Hudson Bay south to New Jersey and in the mountains to North Carolina; west to Iowa and Great Slave Lake. (Includes *Z. h. canadensis* Batchelder and *Z. h. hardyi* Batchelder.)

1 a. *Zapus hudsonius ladas* Bangs. Eastern Quebec, north to Hamilton Inlet, Labrador.

1 b. *Zapus hudsonius americanus* (Barton). Vicinity of Raleigh, N. C., north along the coastal plain to southern Connecticut and the lower Hudson valley.

1 c. *Zapus hudsonius campestris* Preble. Great Plains, from Manitoba to Nebraska, and northeastern Colorado, west over eastern Wyoming.

1 d. *Zapus hudsonius alascensis* Merriam. Yakutat Bay, north to Yukon River.

2. *Zapus tenellus* Merriam. Known only from vicinity of Kamloops, B. C.

3. *Zapus princeps* Allen. Rocky Mountain region, from New Mexico to northern Alberta.

3 a. *Zapus princeps minor* Preble. Plains of Saskatchewan.

3 b. *Zapus princeps oregonus* Preble. Blue Mountains of Oregon.

4. *Zapus major* Preble. Known only from the type, from Warner Mountains, Oregon.

5. *Zapus nevadensis* Preble. Known only from the type, taken in the Ruby Mountains, Nevada.

6. *Zapus trinotatus* Rhoads. Coast region, from Frazer River, B. C., to northern California. (Includes *Z. imperator* Elliot.)

6 a. *Zapus trinotatus alleni* Elliot. Mount Shasta and Sierra Nevada of California.

7. *Zapus montanus* Merriam. Cascade Range, Oregon.

8. *Zapus orarius* Preble. Coast of California from Point Reyes to Mendocino County.

9. *Zapus pacificus* Merriam. Rogue River Valley, Oregon, and southward into California.

10. *Zapus saltator* Allen. Northern British Columbia.

SUBGENUS NAPÆOZAPUS.

11. *Zapus insignis* Miller. New Brunswick, northern New England, Adirondacks and Catskills of New York, and southward in the Alleghanies to Maryland.

11 a. *Zapus insignis roanensis* Preble. Roan Mountains, N. C.

11 b. *Zapus insignis abietorum* Preble. Quebec and western Ontario.